Applicant's first answer is that a step of "accessing" the conduit, anywhere, irrespective of which end, is not necessary. The claim has a functional limitation with respect to air pressure, namely "to cause air...to flow from the conduit into the influence zone". There is no rule of claim construction which requires an accessing step to be stated, anymore than there is a rule to say, e.g., "providing a source of air pressure", or "providing this, providing that...etc.". Reasonable inferences are permitted. Under applicant's claim, either the method and functional result will be carried out or it will not. Accessing is implied. If there is no accessing anywhere, then it will not be carried out.

Applicant's second answer is that applicant does not agree with examiner's analysis of what must occur to carry out the invention: Examiner has indicated thinking that, when air pressure is applied to the conduit, it would flow upstream to the septic tank and not through the influence zone. As the '647 patent describes, air may be applied any number of places, including the upstream end of a conduit, the distribution box, and the upstream of the septic tank (when the septic tank permits through flow). See Fig. 13 for an example. In another respect, the design of the septic tank exit end. often includes an elbow which will act as a liquid valve or stop or J-trap, which prevents upstream flow through the tank, when air pressure is applied anywhere in the conduit. Patent '647, Col. 13, line 65+. Thus, the step of pressurizing the conduit, however the conduit is pressurized, causes flow to the influence zone. Only with no pressure would there be no flow.

Other bases for rejection - Generally

Applicant has amended his claims and argument hereinafter is addressed to them as such. Applicant submits, in more detail below, that in some instances the cited reference does not disclose or teach the invention as the examiner asserts, or there is no motivation to combine. In other instances, applicant has amended the claims, to clarify and distinguish the invention from the prior art. That should help to make them allowable.

With respect to definitions and interpretation of Johnson: Respectfully, the examiner's use of a definition of the word "soil" from a general purpose dictionary, is inappropriate. Gravel or broken stone (hereafter, simply "stone"), and "surrounding soil" and "influence zone in the soil", etc. as used are by applicant and the prior art have to be interpreted in terms of the respective specifications and technical prior art.

Applicant's claims are based on his definitions and his specification, wherein a leaching conduit comprises e.g., a perforated pipe surrounded by crushed stone, within a trench in soil, where there is an influence zone. Normally, the soil is the soil of the earth, but it can be artificial or atypical material. Applicant's definition and distinction of soil, from the stone of a conduit, are consistent with the prior art.

Applicant provides references AR and AS. The conduit described in AR (called distribution line) and in reference AS (called leach line) support applicant's definition. A leach pit, also called "seepage pit" (Attachment AS) and "dry well" (Johnson patent), is a vertically running leach line or conduit. See marked parts of the references. The conduit is referred to as a "drain field lateral" in Hassert. An array of interconnected conduits comprises a leach field.

When a conduit comprises stone, it provides storage area for water in its interstices, and it supports the surrounding soil, to provide a face in the soil through which water can percolate.

Rejection of Claims 1-5, 10, 11, 16 and 17 under 35 USC 102(b)

As now-amended, independent claims 1, 11 and 16, and those depending therefrom, are not disclosed by Johnson. Johnson does not disclose the step of aeration of the influence zone which would result if ~~the conduit~~ there was pressurizing of the conduit relative to the soil and atmosphere.

The air pressurizing step of Johnson is applied to agitate the settled debris in the gravel at the bottom of the conduit. The Johnson method would never pressurize the conduit, since as indicated at Col. 5, line 5-8 and Col. Col. 5 line 68 to Col. 6, line 1, the leaching field conduits are "opened up" to atmosphere. See also examiner paragraph 9 in the rejection. Thus, Johnson would not pressurize the conduit and would not cause air flow through the influence zone.

With respect to claim 3, applicant agrees that Johnson shows a conduit, which comprises a stone (or sand/gravel) filled trench. However, Johnson clearly shows that his probe is agitating the stone of the conduit, not the soil which surrounds said stone/conduit. See Fig. 4 and 6, and Col. 5, line 30-32. Applicant's pipes 24 are spaced apart from the conduit, in the soil. Thus claim 3 is not taught.

With respect to claim 5 and examiner page 5. Applicant respectfully disputes examiner's contention that suction is by definition a subatmospheric pressure. Applicant agrees that a negative pressure is needed in a pipe line or hose which is sucking up liquid. However, inserting a probe or wand, and sucking liquid from an open conduit, as taught by Johnson, is phenomenologically different from applying subatmospheric pressure to a conduit, as applicant claims.

Regarding claims 3, 16 and 18: It is not known nor taught to use the process of uplifting the soil with the additional step of the sealing the holes in the soil created by the method, and to combine that with the step of pressurizing the conduit to make air flow into the influence zone.

Rejection of Claims 6, 7, 8, 9 and 12 under 35 USC 103

Since applicant has amended his claims to include the matter of the rejected claims in his independent claims, he addresses the patentability all his presently pending claims with respect to a 35 USC 103 rejection.

First, there is no suggestion or teaching to use the pumping of Johnson for any purpose than he teaches, namely to physically transport scum and accumulated waste. Second, the Johnson process, would not aerate the influence zone because he does not teach creating any pressure in the conduit relative to the influence zone. See the previous section. Third, Johnson flow air through the conduit, and then removes debris with water. Applicant uses the reverse sequence, and it is not taught. Fourth, there is no suggestion to combine with any other step, such as the

aeration step (including any step taught by Hassett, addressed below).

With respect to claim 8 rejection: Applicant agrees it is routine to remove solids from a septic tank on a periodic basis – usually every several years, as a maintenance function. However, applicant's invention is concerned with treating the leach field. Applicant's invention is not concerned with removing scum and other accumulated debris from inside the leaching conduits – which is what Johnson does.

Examiner might logically conflate the Johnson leachfield debris removal with debris removal from the septic tank. But, applicant respectfully submits examiner has no basis, other than her own concept of efficiency, that the Johnson method would be done "in conjunction with" pumping the septic tank, upon which to base a rejection. What if visual inspection shows the septic tank needs not be cleaned? Why would it then be obvious to pump the septic tank? Examiner assumes sludge, etc., in the tank.

Applicant submits it is more likely that the steps would not be done conjunctively. "Pumping the tank" is the familiar first thing someone does when a leach field fails by burbling up through the soil. Why then would it be obvious to again remove part or all of the septic tank contents, when Johnson's or applicant's method was used subsequently? It rather more obvious that, because of specialized equipment and additional cost, the tank would be first pumped. And, if that did not solve the problem, then use would be made of the process of Johnson, or the process of applicant.

Applicant has amended claim 8 to better state the contemporaneous and non-obvious invention.

As to the Hassett patent and its combination with Johnson, to reject claims which include the aeration step, which now are the independent claims: The examiner states that it would be obvious to modify the method of Johnson as taught by Hassett.

First, the rejection is based on impermissible hindsight, in view of applicant's invention, because there is no teaching to combine, particularly, in view of applicant's point that Johnson does not teach any pressurizing of the conduit.

Second, the combination of Hassett and Johnson would not be, nor work to carry out, applicant's invention. As mentioned above, in the Johnson invention, the conduits are open to atmosphere and thus cannot be pressurized. Johnson teaches away from Hassett.

Third, Hassett is a teaching in connection with an atypical apparatus, namely, one wherein conduits are captured beneath a continuous cap-like membrane buried in the soil, which prevents air from flowing naturally upwardly through the soil. As Hassett mentions at Col. 5, the conditions would turn anaerobic because of the membrane cap. Thus, if one wants aerobic, air needs to be supplied. In a normal leach field, and in the invention claimed by applicant, the soil runs from vicinity of the conduit continuously upwardly to an upper soil surface which is exposed at least in part to atmosphere, where interchange of soil and air gases can ensue. Applicant's amended claims better state that distinction. There is thus no teaching from

Hassett or any usefulness beyond his peculiar apparatus.

Applicant has amended claim 7 to better state the invention, to distinguish applicant's localized membrane, which channels the downward flow of air through soil in a selective fashion, from the continuous cap of Hassett. Furthermore, Hassett teaches no downward flow.

Therefore, Hassett should not be used as basis for rejection, as it has been.

Wherefor, applicant respectfully requests withdrawal of the rejection and allowance of his claims as amended.

Respectfully submitted,
DAVID A. POTTS

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 10, 2004

_____
C. G. Nessler

App. Serial No. 10/053,311

Applicant: D. Potts

Specification, showing where changes are being made on May 10, 2004

Page 3, first full paragraph

In accord with the invention, drawing waste water causes it to be replaced by diffusion of air from the atmosphere. The related invention is then preferably applied to the soil, wherein air is forced into the soil by pressurizing the interior of conduit. Use of the present invention lowers resistance to such air flow and air flows through the influence zone and field more easily and quickly than otherwise.

Page 4, first narrative paragraph

The present invention may be used in combination with the invention of the related U.S. Pat. No. 6,485,647~~patent application Serial No. 09/526,381~~, Method and Apparatus for Treating Leach Fields. In the related invention, air or other reactive gas is flowed through the influence zone of a leach field conduit, to beneficially affect the biochemical activity in the influence zone. Various methods and apparatuses for causing air to flow through the influence zone are described. The prior invention is referred to here as Leaching Field Aeration, or LFA. The description and drawings of the LFA Patent No. 6,485,647~~patent application Serial No. 09/526,381~~ are hereby incorporated by reference.

Page 9 last paragraph, continuing on to page 10

In another embodiment of the invention, the leach field is configured in a certain less common way, so that when the septic tank is partially emptied, a conduit which is connected to the septic tank and is~~are~~ filled with water at least partially drains back into the tank. Thus, with this kind of system, when the septic tank is partially or fully emptied, there is dewatering of the conduit, in the same way as achieved by directly pumping of a conduit.

When a waste water system is in continuing use, and it is desired to dewater the conduits and influence zone, the septic tank is partially or fully emptied, prior to or contemporaneously with removal of water from the conduits. That action provides an accumulation zone or reservoir for subsequent waste water flow into the septic tank. Thus, as the use of the waste water system continues, there will be a longer time before which wastewater re-flows into the dewatered conduits and influence zone. This increases the time during which biochemical action can be effected by air in the influence zone, whether the air is present or simply due to natural processes or whether it is being forcibly flowed through the zone.

Fig. 5 shows how an air impermeable membrane 80 such as polyethylene sheet is laid over the surface 42 of the soil proximately above the conduit. Adjacent areas are uncovered. Thus, air which is being drawn downwardly to replace water removed by the dewatering technique will flow as indicated by the arrows. With the membrane, air will be channeled to flow through soil near the sides of the conduit, rather than flowing directly downward through soil directly above the conduit. The membrane may be a sheet of plastic or granular media which is relatively impermeable, such as wetted bentonite. Other films and substances will be understood to be substitutional. The membrane may alternatively be buried beneath the surface, although that will usually only be practical with an original installation.

To facilitate flow of water through the soil of a leach field to a collection point when practicing the dewatering techniques described herein, the soil may be made more permeable by using a process wherein pressurized air or other fluids are forced into the earth through specially designed probes. For example, the commercially available Terra-Lift™ equipment and process (Terra Lift, Inc. Stockbridge, Massachusetts, US) may be used, in accord with the description in U.S. Pat. No. 5,810,514. In the process, injection pipes are inserted into the depth of the soil, adjacent to the conduits. For instance, a pipe is inserted between parallel runs, at spaced apart locations, one

space

after the other. The soil is lifted up and fractured by a sharp pulse of compressed air, and fissures or permeable paths are created within the soil. This aids flow of water away from the influence zone. Sometimes the process involves injection of beads or pellets into the fissures, but in practice of the present invention, that step will be mostly omitted.